
CENTRAL EXPERIMENTAL FARM,
DEPARTMENT OF AGRICULTURE,
OTTAWA, - - - - CANADA.

BULLETIN No. 7.

TWO-ROWED BARLEY.

APRIL, 1890.

CENTRAL EXPERIMENTAL FARM.

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DEPARTMENT OF AGRICULTURE,

OTTAWA, - - - - - CANADA.

CAN GOOD TWO-ROWED BARLEY BE GROWN IN
CANADA ?

Recent opinions of Maltsters, Brewers and Corn
Brokers in Great Britain on Canadian Two-rowed
Barley, the growth of 1889.

TO THE HONOURABLE THE MINISTER OF AGRICULTURE :

SIR,—

In accordance with your instructions samples of Canadian two-rowed barley of the growth of the past season were forwarded on the 24th of January to the office of the High Commissioner in London, with the request that the opinions of some of the leading maltsters, brewers and dealers be obtained as to their quality and that the endeavour be made to ascertain the prices which such barleys would command at present in the markets of Great Britain. The samples sent were taken from crops grown on the Experimental Farms and from specimens which have been returned by farmers in the several Provinces of the Dominion to whom sample bags were mailed last year for test. Without multiplying the samples unduly, the endeavour was made to have most of the Provinces represented, so that it might be ascertained over how large an area it was probable that two-rowed barley might be grown with profit. The varieties forwarded were of the following five sorts, which formed the bulk of the distribution made last year :

Carter's Prize Prolific Barley.

	Weight per bushel.
From Experimental Farm, Brandon, Man.	54
" Winona, Ont., grown by Henry R. Wilson.	55 $\frac{1}{2}$
" Centreville, P.E.I. / " Benjamin Cole.	56

Danish Chevalier.

" Freeman, Ont., grown by George Fisher.	54 $\frac{1}{2}$
" Experimental Farm, Brandon, Man.	56
" " " Indian Head, N.W.T.	55
" Medicine Hat, N.W.T., grown by J. L. Hawk.	56 $\frac{1}{2}$

Danish Printice Chevalier.

" Myrtle, Ont., grown by Thos. Manderson.	53
" Experimental Farm, Brandon, Man.	55 $\frac{1}{2}$
" " " Indian Head, N.W.T.	53 $\frac{1}{2}$

Beardless.

" Central Experimental Farm, Ottawa.	51 $\frac{3}{4}$
" Hamilton, Ont., grown by J. A. Bruce.	54
" Experimental Farm, Brandon, Man.	54 $\frac{1}{2}$
" " " Indian Head, N.W.T.	55

English Malting.

" Myrtle, Ont., grown by Thos. Manderson.	54
" Experimental Farm, Brandon, Man.	54
" " " Indian Head, N.W.T.	53 $\frac{1}{2}$

From the office of the High Commissioner, the following reports and letters have been received. The samples of barley were not large enough to admit of being divided so that each firm might receive some of the same lot, hence the reports are not uniform as to the samples examined:—

" 79 MARK LANE, LONDON,

12th February, 1890.

J. G. COLMER, Esq.,

Secretary of the High Commissioner of Canada,

9 Victoria Chambers,

DEAR SIR,

We are in receipt of your communication of the 11th instant, with three samples of Barley grown in Canada.

They are all fit for malting purposes, but would not be considered *fine* quality in comparison with *fine* English and some foreign produce, such as Moravian, Bohemian and Californian. We imagine

the climate of Canada is not favourable to producing *mellow* Barley, which requires *sun heat* and genial atmosphere.

Carter's Prolific is well liked, having been raised by that firm from *selections* of the *finest* produce and *carefully grown*.

We remain,

Your obedient servants,

M. F. WOODLEY & Co."

In the letter of Sir Charles Tupper to the Minister of Agriculture, which accompanies this, he says: "Messrs. Woodley informs me that the two better samples (those from Winona and Prince Edward Island) would have fetched from 38s. to 40s. a quarter of 448 lbs. in the London market, while that from Brandon would probably have fetched about 36s. Messrs. Woodley wished me to impress upon you the absolute necessity of recommending farmers not to thresh the grain too closely, as they seem to be doing. It may make the grain look prettier, but it chips off the ends, and it has therefore a tendency to go mouldy in malting, which considerably lessens its value."

MEMORANDUM.

"From R. & J. ARDLEY, 60 Mark Lane,

London, Feb. 19, 1890.

To MR. J. G. COLMER:

We have affixed quotations to the four samples of barley received from you this morning. We consider that the prices are about their value on the London Corn Exchange.

1. Beardless Barley—

From Brandon, Manitoba..... 38s. per qr.

2. Danish Chevalier—

From Medicine Hat, N.W.T..... 42s. "

3. Danish Printice Chevalier—

Indian Head, N. W. T..... 34s. "

4. English Malting—

From Brandon, Man..... 30s. "

From

"IND, COOPE & Co. (Limited),

Burton-on-Trent, March 18, 1890.

J. G. COLMER, Esq.,

9 Victoria Chambers, London,

DEAR SIR,—

Referring to yours of the 15th ultimo, addressed to our Ramford

house, we beg to say we have carefully tested the samples of barley and find they are quite suitable for malting purposes, and we should estimate their value at from 34s. to 36s. per quarter.

Yours truly,

for Ind, Coope & Co. (Limited),

E. I. BUD, Director."

(No information has yet been received as to the particular samples submitted to either of the firms in Burton).

From

"MACKESON & Co.,

Brewers, Maltsters and Spirit Merchants,

Brewery, Hythe, Kent—Established 1669—

February 28, 1889.

J. G. COLMER, Esq.,

DEAR SIR,—

We must apologise for the delay in replying to your favour of the 18th February. We must congratulate you on the improvement in the samples since you last favoured us. We consider there is a great improvement in the size of the barleys, and that they will have very good malting qualities. It is of course difficult without having worked the barley to say what its value is and say what sort of malt it will make. There is one point which we would draw your attention to, that is, that the barley appears to have been carelessly threshed. This particularly refers to the two samples of Danish Chevalier. If you look at these two samples you will find a number of corns cut in half, this is done by the machines being set too closely during the threshing operation. No ordinary cleaning machine will take this out as their diameter is as big as a whole corn.

The presence of these half corns is very detrimental for malting purposes, as they almost invariably mould on the floors, and the mould spores communicate themselves to other corns which likewise become affected with the mould.

We would, therefore, strongly recommend you to advise your farmers to be more careful in threshing. We are inclined to think that the Danish Chevalier barleys are the best. We do not like Beardless Barley for malting, and the 'English Malting' does not appear to us to be quite so mellow as the two samples of Danish Chevalier. We have no doubt that these barleys would find a ready

sale in England, and from the excellent condition in which they are, will stand the voyage without the slightest detriment.

The curse of the barley which comes from the East is the weevil in them. We conclude that in a climate like Canada you will not have this difficulty to contend with.

We notice you ask for the present market value of these samples. As we have before stated it is a difficult matter to assess their value without having tried them, but we should think that the Danish Printice Chevalier would be worth about 37s. to 40s. per quarter in London. English Malting about 34s. to 36s., Danish Chevalier about 36s.; Beardless about 36s. Any further information we can give you at any time, we shall only be too glad to afford, and if there are any consignments of these barleys coming to England we shall be happy to try them.

Yours faithfully,

MACKESON & Co.

P.S.—It must not be forgotten that barley is abnormally dear this season, in considering these prices."

Through Mr. John Dyke, Emigration Agent of the Canadian Government at Liverpool, the opinion of H. C. Woodward has been obtained. Mr. Woodward is a large buyer and is said to be one of the best judges of grain in England :

"CEREAL COURT, BRUNSWICK ST.,

JOHN DYKE, Esq.,

LIVERPOOL, Feb. 13, 1890.

Agent Canadian Government,

Liverpool.

DEAR SIR,—

I am favoured with the letter of the Secretary of the High Commissioner of Canada, addressed to you, and have much pleasure in replying to the questions contained therein. I have also received the three samples of barley grown from Carter's Prize English Seed and am glad to see that the suggestion made in my letter of March 16, 1889, as to experimenting with such in Canada, has been followed out with fairly satisfactory results.

The samples you send and ask my opinion of prove the importance of good heavy seed as they show an *immense stride* in quality as compared with the Canadian growth you submitted last year. I should place as best of these and call No. 1 the parcel grown by H. R. Wilson, Winona, Ontario. This is nice mellow

bright barley, of very good malting quality, and would have fetched 40s. per 448 lbs. in English markets this autumn. No. 2, or second best, is that grown by Benjamin Cole, Prince Edward Island. It is fully as heavy as the first lot, but rather darker in colour and coarser in skin, and I should value at about 38s. per quarter in England.

No. 3, grown at Experimental Farm (Brandon), is disappointing in size and stoutness. It *looks* as though it had been grown on very light sandy land, and been rather 'burnt up' in a droughy summer. The colour is bright, but the grain looks rather harsh and 'steely' and is uneven in size. In fact this sample does not show the advantage of the seed so much as do the other two.

In all three samples there is a certain amount of *broken corn*, due in part to the drum of the threshing machine being set a little too close. Broken corn is *disliked* by maltsters, as it goes to *mould* on the malting floor and affects *flavor* of malt and ale.

In conclusion I have no hesitation in saying that if such samples as No. 1 and No. 2 could be produced in Canada, they would find a ready market in England at the full values of the day for Malting Barleys.

I am, dear Sir,

Yours truly,

H. C. WOODWARD."

"CEREAL COURT, BRUNSWICK ST.,

LIVERPOOL, March 5, 1890.

H. C. WOODWARD, & Co.,

Corn Brokers and Commission Agents.

J. DYKE, Esq.,—

Report and valuation of eight samples of Canadian Barley received from J. Dyke, Esq., Agent of the Government of Canada.

Danish Chevalier grown at Medicine Hat, N. W. T., 40s. to 42s. per qr. of 448 lbs.

Danish Chevalier grown at Brandon, Man., 38s. to 39s. per qr. of 448 lbs.

Danish Printice Chevalier grown at Brandon, Man., 38s. per qr. of 448 lbs.

Beardless grown at Brandon, Man., 38s. per qr. of 448 lbs.

Beardless grown at Hamilton, Ont., 36s. per qr. of 448 lbs.

English Malting grown at Indian Head, 35s. per qr. of 448 lbs.

Danish Chevalier grown at Indian Head, 34s. per qr. of 448 lbs.

Beardless grown at Ottawa, 30s. to 32s. per qr. of 448 lbs.

I value the above in the order named. They are all suitable for malting, and the lowest of them superior to the six-rowed or ordinary Canadian type. This year for three or four *first quality* lots even more might be obtained, but barley has sold relatively high this season, especially the best sorts.

Yours truly,

H. C. WOODWARD."

Through Mr. T. Graham, Emigration Agent at Glasgow, Scotland, the following have been received:—

"PETER RINTOUL, SON & CO.,

46 Gordon Street, Glasgow.

T. GRAHAM, ESQ.,

St. Enoch Square.

DEAR SIR,

We have examined the samples of Canadian Barley very carefully along with Hugh Baird & Son, Maltsters, and we enclose copy of their report on each sample with to-day's value per 448 lbs. These samples indicate an ability to produce finer barley than we have ever seen from Canada. We think it will be necessary to import each year seed, if the quality is to be kept up. The climate or the land has the tendency to produce light, thin barley, which might be obviated by sowing new seed each year.

The broken grains in some of the samples are very objectionable, more care in threshing would avoid this. All these samples would command a very ready sale, they are specially adapted for brewers, who would, no doubt, give long prices to get so fine a quality as some of the finer samples. The Messrs. Harvey, who tested the samples by malting, say the result is very satisfactory. The number of lie backs is very small.

Yours truly,

PETER RINTOUL & CO."

Report of valuation by Hugh Baird & Son, Glasgow.

"Danish Chevalier, grown by J. L. Hawk, Medicine Hat, N. W. T., is as fine barley as we have ever seen, and should command the highest price of any barley. Value to-day 40s. per 448 lbs.

Danish Chevalier, grown at Experimental Farm, Brandon, Man. Too many broken grains, very bad fault. The barley is fine, and should be worth 38s. to 38s. 6d.

Danish Chevalier, grown at Experimental Farm, Indian Head, N.W.T., grown by Thomas Manderson, Myrtle, Ontario, value about 36s.

Danish Printice Chevalier, 55 lbs., thinner barley, value about 32s.

Danish Printice Chevalier, grown at Experimental Farm, Indian Head, N.W.T., $53\frac{1}{2}$ lbs., value 30s.

English Malting grown at Experimental Farm, Brandon, Man. Sample also grown at Indian Head, N. W. T., both samples about 33s. The one sample is a little better colour than the other.

Beardless Barley grown at Experimental Farm, Brandon, Man., value 37s., weight $54\frac{1}{2}$ lbs., too many broken grains.

Beardless Barley grown by John A. Bruce, Hamilton, Ont., 54 lbs., value 35s.

Beardless Barley grown at Central Experimental Farm, Ottawa, Ont., $51\frac{3}{4}$ lbs., value 33 to 34s."

It may be interesting to those who are not familiar with the country between the points named to know that from the farm of Benjamin Cole, on Prince Edward Island, to that of J. L. Hawk at Medicine Hat, in the North-West Territories, the distance is nearly 3,000 miles.

The difference in the relative opinions of these experts as to the prices these barleys would command will be seen by reference to the following table:—

TABULATED ESTIMATE OF VALUES PER QUARTER OF 448 LBS.

	M. F. Woolley & Co., London.	H. C. Woodward, Liverpool.	Hugh Baird & Son, Glasgow.	Mackeson & Co., Hythe, Kent.
Carter's PRIZE PROLIFIC BARLEY:				
From Brandon, Manitoba.	About 36s.			
" Winona, Ontario.	38s. to 40s.			
" Contrevoile, P. E. I.	38s. to 40s.			
DANISH CHEVALIER:				
From Freeman, Ontario.				
" Brandon, Manitoba.				
" Indian Head, N. W. T.				
" Medicine Hat, N. W. T.				
DANISH PRINCE CHEVALIER:				
From Myrtle, Ontario.				
" Brandon, Manitoba.				
" Indian Head, N. W. T.				
BEADEFLESS:				
From Ottawa, Ontario.				
" Hamilton, Ontario.				
" Brandon, Manitoba.				
" Indian Head, N. W. T.				
ENGLISH MALTING:				
From Myrtle, Ontario.				
" Brandon, Manitoba.				
" Indian Head, N. W. T.				

These valuations of Canadian two-rowed barley effectually dispose of the objections which have been urged by some that two-rowed barley of such quality as will find favour in the English market cannot be grown in Canada. The opinions which have been obtained are those of some of the largest buyers and consumers of barley in Great Britain. The lowest figure named, 30s. per quarter of 448 lbs., is equal to 78 cents in England for the

Canadian bushel of 48 lbs. Taking the average of all the quotations for all the samples we find the figure to be a little over 36s., which is equal to 9 $\frac{1}{2}$ cents for the Canadian bushel in England, while those who can grow barley which will receive the top price, 40 to 42s., would have their grain sell in Great Britain at from \$1.06 to \$1.12 per Canadian bushel. From these figures must be taken the cost of transportation and the buyer's commission. A trial shipment of six-rowed barley to England was made by some buyers in Western Ontario in February last, when about 20,000 bushels was forwarded. This was taken from the neighbourhood of Toronto and delivered in Liverpool for 30 cts. per 100 lbs. A second shipment of 18,000 bushels was sent early in March from north of Toronto, which cost 38 cts. per 100 lbs. to deliver in Liverpool. From 18 to 19 cts. per bushel would probably cover the cost of transportation from the producer to the consumer during the winter months, while 12 to 14 cts. would be likely to cover the rates obtainable either to Liverpool or London during the period when navigation is open. Taking the average cost at 15 cts. and allowing 3 cts. additional for commission and incidental expenses, this would leave the farmer on the basis of the lowest of the estimates given 60 cts. here for the Canadian bushel; taking the average figure, it would be 76 cts., and on the higher estimates 88 to 94 cts.

Placing the exports of Canadian barley at 10 million bushels, every cent per bushel added to the price obtained for it puts \$100,000 into the pockets of the farmers, and had the entire crop of surplus barley of 1889 in Canada been two-rowed and sold at the lowest figures which have been given for the poorest of the samples sent to England instead of shipping the crop to the United States at an average of about 45 cts., the gain to the farmers of Canada would have amounted to one million five hundred thousand dollars, and could the average price which has been named have been obtained, the difference would have been over three millions of dollars. With such possibilities in view the wisdom of making a strong effort in that direction can scarcely be questioned by any reasonable mind.

The objection has been made in some quarters that two-rowed barley soon runs out and that the deterioration is so rapid that new seed would have to be imported every year—such statements unless based on experience are of very little value.

The experiments in this direction which have been carried on at

the Experimental Farms all point as far as they go to the opposite conclusion, and instead of deterioration there has been a steady improvement. The opinion of most practical farmers whom I have met or corresponded with, who have grown two-rowed barley is that there is no more tendency to run out with this variety of grain than with any other sort, and that with such change of seed from one soil to another and from one district to another as good farmers everywhere practice, there is little doubt that the quality of the grain could be maintained for many years. In Denmark where two-rowed barley has of late been so successfully grown it has been found that any new variety of barley introduced there has required two or three years to acclimatize it, and that while this process was going on a steady improvement was manifest in the crop, and that when acclimatized it retained its vigour for many years. There is no doubt that with indifferent or poor cultivation the best of seed is likely to give poor results. In England the finest barley is grown on land in a high state of cultivation and that will no doubt be the experience here. In Europe barley is usually sown after roots for which the ground is well manured, it is also a common practice to dress the land just before seeding with a mixture of from 200 to 300 lbs. of superphosphate mixed with 50 to 100 lbs. of nitrate of soda per acre. A light, rich, friable soil is generally regarded as the most suitable for barley, although good crops are usually got on clay loam, if it is well drained and the soil thoroughly worked so as to reduce it to a fine mellow condition. The crop should be got in early, and if the seed is of good quality, one and a half bushels to the acre is sufficient. It should be put in with the drill, and it is believed to be advantageous to have the drills run as nearly as possible north and south as the sun can then get freer access between the rows. The facts presented show that the outlook for the Canadian farmer is encouraging, and with the help of the excellent seed now being provided under your instructions, it is hoped that a large, profitable and permanent trade with Great Britain in two-rowed barley will soon be established.

I have the honour to be,
Your obedient servant,

WM. SAUNDERS.
Director Experimental Farms.

OTTAWA, April 12, 1890.